We claim:

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1. An architecture for an automation system, the automation system to control and monitor a plurality of devices, the architecture comprising:

at least one look-up service to maintain at least one database of the plurality of devices by a plurality of device attributes including device type and physical location, and of a plurality of device objects corresponding to the plurality of devices by mapping a name for each device object to at least one address for each device object;

a soft-state store to manage at least periodic refresh information for the plurality of devices and the plurality of device objects, the refresh information managed by the soft-state store as a plurality of soft-state variables; and,

a publication/subscription eventing component to enable subscriptions to events related to changes in the plurality of soft-state variables managed by the soft-state store.

2. The architecture of claim 1, wherein the at least one look-up service comprises:

an attribute-based look-up service to maintain a first database of the plurality of devices by the plurality of device attributes; and,

a name-based look-up service to maintain a second database of the plurality of device objects corresponding to the plurality of devices.

3. The architecture of claim 2, wherein the name-based look-up service instantiates instances of the plurality of device objects.

4. The architecture of claim 2, wherein the second database maintained by the name-based look-up service further includes a plurality of computation objects.

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5. The architecture of claim 1, wherein the at least one address for each device object comprises a synchronous address for synchronous communication with the device object, and an asynchronous address for asynchronous communication with the device object.

6. The architecture of claim 1, wherein the device and the device object refresh information included in the soft-state variables comprises periodic heartbeats sent by each entity of the plurality of devices and the plurality of device objects.

7. The architecture of claim 6, wherein the periodic heartbeats sent by each entity of the plurality of devices and the plurality of device objects refresh the entity, such that failure by the entity to send the periodic heartbeats as required by a refresh rate for the entity results in removal of the entity from the at least one look-up service.

8. The architecture of claim 6, wherein each entity of the plurality of devices and the plurality of device objects has a refresh rate, and the periodic heartbeats sent by the entity are stored by the soft-state store in a persistent store where the refresh rate for the entity is lower than a predetermined threshold and are stored in a volatile store where the refresh rate is greater than the predetermined threshold.

9. The architecture of claim 1, further comprising a plurality of system management daemons to detect failures in the plurality of devices, and initiate recovery from the failures.

10. The architecture of claim 9, wherein the plurality of system management daemons include a power line monitoring daemon to detect problems with the plurality of devices that are power line devices.

11. The architecture of claim 10, wherein the power line monitoring daemon uses pattern-based detection for detecting unacceptable power line activity.

12. The architecture of claim 11, wherein the power line monitoring daemon matches power line patterns against unacceptable power line patterns stored in a pattern database.

13. The architecture of claim 10, wherein the power line monitoring daemon uses model-based detection for detecting acceptable power line activity.

14. The architecture of claim 13, wherein the power line monitoring daemon tests power line patterns against a pattern model of acceptable power line patterns.

15. The architecture of claim 9, further comprising a plurality of instances for each of at least one of the plurality of system management daemons, such that the plurality of instances exchange age information, and each instance uses the age information to determine whether it is a leader instance.

16. The architecture of claim 1, wherein the at least one look-up services, the soft-state store, and the publication/subscription eventing component reside within a system infrastructure layer of the architecture.

17. The architecture of claim 16, further comprising an application layer in which the plurality of device objects reside.

18. The architecture of claim 17, further comprising at least one automation application and a plurality of device daemons corresponding to the plurality of devices residing in the application layer.

19. The architecture of claim 16, further comprising a user interface layer in which an email daemon, a voice recognition interface, a browser interface, and a natural language parser interface reside.

20. The architecture of claim 19, wherein the user interface layer provides for independent verification of a command performed relative to a device within the automation system.

21. An architecture for an automation system, the automation system to control and monitor a plurality of devices, the architecture comprising:

a system infrastructure layer including:

at least one look-up service to maintain at least one database of the plurality of devices by a plurality of device attributes including device type and physical location,

and of a plurality of device objects corresponding to the plurality of devices by mapping a name for each device object to at least one address for each device object;

a soft-state store to manage at least periodic refresh information for the plurality of devices and the plurality of device objects, the refresh information managed by the soft-state store as a plurality of soft-state variables;

a publication/subscription eventing component to enable subscriptions to events related to changes in the plurality of soft-state variables managed by the soft-state store; and,

an application layer in which the plurality of device objects reside, and including at least one automation application to control and monitor the plurality of devices.

22. The architecture of claim 21, further comprising a user interface layer in which one or more of an email daemon, a voice recognition interface, a browser interface, and a natural language parser interface reside.

23. An architecture for an automation system, the automation system to control and monitor a plurality of devices, the architecture comprising:

an attribute-based look-up service to maintain a first database of the plurality of devices by a plurality of device attributes including device type and physical location;

a name-based look-up service to maintain a second database of a plurality of device objects corresponding to the plurality of devices by mapping a name for each device object to at least one address for each device object;

a soft-state store to manage at least periodic refresh information for the plurality of devices and the plurality of device objects, the refresh information managed by the soft-

state store as a plurality of soft-state variables;

a publication/subscription eventing component to enable subscriptions to events related to changes in the plurality of soft-state variables managed by the soft-state store; and,

one or more system management daemons to detect failures in the plurality of devices, and initiate recovery from the failures.

24. The architecture of claim 23, wherein the at least one address for each device object comprises a synchronous address for synchronous communication with the device object, and an asynchronous address for asynchronous communication with the device object.

25. The architecture of claim 23, wherein the device and the device object refresh information included in the soft-state variables comprises periodic heartbeats sent by each entity of the plurality of devices and the plurality of device objects.

26. The architecture of claim 25, wherein the periodic heartbeats sent by each entity of the plurality of devices and the plurality of device objects refresh the entity, such that failure by the entity to send the periodic heartbeats as required by a refresh rate for the entity results in removal of the entity from the name-based and the attribute-based look-up services.

27. The architecture of claim 23, wherein the one or more system management daemons include a power line monitoring daemon to detect problems with the plurality of devices that are power line devices.

28. The architecture of claim 23, further comprising a plurality of instances for each of at least one of the one or more system management daemons, such that the plurality of instances exchange age information, and each instance uses the age information to determine whether it is a leader instance.

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